

#28/APPEAL BRIEF  
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Patent Application of: ) PATENT  
)  
Marc K. Roberts et al. )  
)  
Application No.: 08/651,562 )  
)  
Filed: May 22, 1996 )  
)  
For: ELECTRONIC STILL VIDEO CAMERA )  
WITH DIRECT PERSONAL COMPUTER )  
(PC) COMPATIBLE DIGITAL FORMAT )  
OUTPUT )  
)  
Group Art Unit: 2712 )  
)  
Examiner: T. Ho )  
)  
Attorney Docket No.: 9329-001COE )

APPEAL BRIEF

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

This is an appeal from the Final Rejection of claims 47-65, 72-74, 80-81, 88-95, and 105-114 under 35 U.S.C. § 103 in the Final Office Action mailed June 8, 1999.

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<u>01-07-00</u>	<u>Joan W OLEKSA</u>	<u>[Signature]</u>
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### I. REAL PARTY IN INTEREST

The real party in interest is St. Clair Intellectual Property Consultants, Inc., a corporation organized and existing under the laws of the State of Michigan, and having a place of business in Grosse Pointe, Michigan.

### II. RELATED APPEALS AND INTERFERENCES

On November 9, 1998, Applicant filed a Notice of Appeal in U.S. Patent Application Serial No. 08/712,493 which is now pending before the Board of Patent Appeals and Interferences. It is believed that the Appeal in Application Serial No. 08/712,493 may directly affect or be directly affected by or have a bearing on the Board's decision in this Appeal. On October 16, 1999, Applicant filed a Notice of Appeal in U.S. Patent Applications Serial No. 08/712,433. The Appeal in Application Serial No. 08/712,433 is not believed to directly affect or be directly affected by or have a bearing on the Board's decision in this Appeal. However, the appeal in Application Serial No. 08/712,433 is referenced herein for informational purposes.

### III. STATUS OF CLAIMS

Claims 47-65, 72-74, 80-81, 88-95, and 105-114 are pending in this application. All pending claims have been rejected and are involved in this appeal.

The rejections include a rejection of all pending claims for obviousness-type double patenting in view of claims 1-18 of commonly owned U.S. Patent No. 5,138,459. Applicants' Assignee has submitted a terminal disclaimer, dated November 3, 1999, mooted this ground for rejection.

#### IV. STATUS OF AMENDMENTS

Claims 47, 56, 62, and 88 have been amended in response to the Final Office action. These amendments have been entered for purposes of appeal.

#### V. SUMMARY OF THE INVENTION

Applicants claim a method and system for storing *image data* in a *digital camera* in a *data file format* that is directly useable by an information handling device such as a personal computer (PC). *Memory device formatting*, which is distinct from *data formatting*, is not addressed by the pending independent claims.

In one claimed embodiment, the *digital camera* is operative to format *image data* into an image data file format *selected* from one of a *plurality* of different data file formats respectively compatible with one of a like *plurality* of different information handling devices. The claimed digital camera utilizes *data format codes* stored in a format memory in the camera for purposes of formatting image data.

In another claimed embodiment, computer operation codes (*OP codes*) are *combined* with the *image data* to provide the *formatted data file*. *Tags* indicating such things as the mode of operation of the camera can also be written into a *header* area of the data file as part of the formatting operation.

In another embodiment of Applicants' invention, *decompression* algorithms are stored on a memory device in a camera along with compressed image data. The stored decompression algorithms can then be used in decompressing the stored image data in a PC or other playback device.

The independent translator claims are directed to a translator device wherein data on a *first* memory element can be formatted for use in an information handling device, and then stored on a *second* memory element. The first memory element can be an analog memory device and the second memory element can be a digital memory device useable in an information handling system.

## VI. ISSUES

1) Whether claims 47, 53, 55-57, 60, 61, 72-74, 80-81, 88, 90, 91, 93, 105-107, and 110-112 are unpatentable under 35 U.S.C. §103(a) over Kawahara et al. (U.S. 4,758,883) in view of Eikonix (9129188) and the Macintosh System Software User's Guide, Version 6.0.

2) Whether claims 48, 49, 50-52, 54, 58, 59, 62-65, 89, 92, 94, 95, 108-109, and 113 and 114 are unpatentable under 35 U.S. C. § 103(a) over Kawahara et al. in view of Eikonix and further in view of Macintosh System Software User's Guide, Version 6.0 and Sasaki et al. (U.S. 5,018,017).

## VII. GROUPING OF CLAIMS

Claims 47-49, 51-65, 88-94 and 110-114 stand or fall together.

Claims 50 and 95 stand or fall together.

Claims 72-74, 80 and 81 stand or fall together.

Claims 105-109 stand or fall together.

## VIII. ARGUMENT

### A. Rejection of Claims Under 35 U.S.C. § 103

Claims 47, 53, 55-57, 60-61, 72-74, 80-81, 88, 90, 93, 105-107, and 110-112 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kawahara et al. (U.S. 4,758,883) in view of Eikonix (9129188) and the Macintosh System Software User's Guide, Version 6.0. Claims 48-52, 54, 58-59, 62-65, 89, 92, 95, 108-109, and 113-114 stand rejected under 35 U.S. C. § 103(a) as being unpatentable over Kawahara et al. (U.S. 4,758,883) in view of Eikonix (9129188) and the Macintosh System Software User's Guide, Version 6.0 and Sasaki et al. (U.S. 5,018,017).

As discussed below, Applicants respectfully traverse the Examiner's rejection of these claims. There is no teaching or suggestion for the Examiner's asserted combination. In fact, the references specifically *teach away* from the claimed invention.

Applicants' further respectfully assert that the Examiner has mischaracterized the art itself. The asserted combination simply does not follow because the references themselves simply lack the disclosures and teachings asserted by the Examiner.

Finally, secondary considerations of commercial success fully rebut the Examiner's stated premise for the asserted combination. Applicants respectfully assert that the Examiner's assertion of obviousness is erroneous in view of such established commercial success.

The Examiner has thus failed to state a *prima facie* case of unpatentability under 35 U.S.C. § 103. Accordingly, Applicants are entitled to grant of a patent.

### B. The Cited References

#### 1. Kawahara et al.

Kawahara et al. teaches and claims a digital camera (Fig. 5A) which is specifically and expressly designed for use with a dedicated, single purpose playback device (Figs. 9 and 10). To achieve this result,

Kawahara et al. utilizes a bubble memory device 33/71 to transfer image data from the Kawahara et al. camera to the dedicated playback device. (Column 9, lines 48-50).

Significantly, Kawahara et al. teaches that it is undesirable to use circuitry or power within the camera to process data.

Also, by virtue of the fact that the image signals are stored in a storage medium by simply performing the color separation coding by coding compression means [DPCM 28 and 29] instead of processing the signals by a CPU and storing the signals, **there is the effect of eliminating the need for a time corresponding to the processing time of the CPU, thus simplifying the circuit construction, reducing the power consumption, reducing the repetition period of successive shots and making rapid sequence shooting possible.**

Kawahara et al. at column 12, lines 34-43. (Emphasis added.)

Accordingly, Kawahara et al. teaches the shifting of data processing to a dedicated playback device for the purpose of “simplifying circuit construction” and “reducing power consumption” at the camera.

Thus, the present invention has the advantage of easily reducing the size and weight of a camera proper and the power consumption in that complicated processes can be assigned to the playback apparatus.

Kawahara et al. at column 11, lines 48-51.

In contrast to Applicants’ claimed invention, Kawahara et al. provides no teaching or disclosure with regard to selectively formatting image data in a digital camera in a plurality of different data formats for use with a like plurality of different information handling devices. Kawahara et al. further provides no teaching or disclosure with regard to placing computer OP codes in an image data file in a digital camera, or of storing a decompression algorithm in a digital camera. The Examiner has not and cannot establish otherwise.

2. Eikonix

The Eikonix reference comprises a two page press release dated September 29, 1988 directed to the introduction of new dedicated computer interfaces for use with Eikonix scanners. Like Kawahara et al., Eikonix expressly teaches that processing should be performed by the playback device.

The Apple Macintosh II and IBM PS/2 interface packages both include a plug-in IEEE 488 interface board, cable and device driver.

Eikonix press release at page 1.

The Eikonix scanner thus uses an IEEE 488 interface board, cable and device driver to connect to a PC. As is well know by those skilled in the computer art, an IEEE 488 cable is typically used for connecting a "dumb" (non-intelligent) peripheral device to a PC. Such devices are controlled by the PC through the use of special driver software.

As taught by Eikonix, different interface boards and different device drivers must be installed in different PC's, such as Apple Macintosh and IBM computers, in order to use the Eikonix camera with those different PC's. Again, in contrast to Applicants' claimed invention, Eikonix provides no teaching or disclosure with regard to the formatting of image data or storage of image data in digital cameras at all.

3. Macintosh User's Guide

The Macintosh System Software User's Guide, Version 6.0 provides instructions to users of Macintosh computers and the proprietary Macintosh operating system. The Macintosh Guide

provides no disclosure or teaching with regard to the use of digital cameras or the formatting of image data therein.

4. Sasaki et al.

Sasaki et al. discloses an electronic still camera having a detachable memory card 15 for recording image data. The image data is read out and displayed by inserting memory card 15 into a proprietary reproducing unit 90.

Sasaki et al. teaches that the user may select the compression rate of data stored in the camera by operating a mode switch 12. However, there is no teaching or disclosure in Sasaki et al. of storing a *decompression* algorithm in the Sasaki et al. camera.

Sasaki et al. furthermore provides no teaching or disclosure with regard to selectively formatting image data in one of a plurality of data file formats for use in a corresponding one of a plurality of different information handling systems. Sasaki et al. also does not provide any teaching or disclosure with regard to placing computer OP codes in an image data file in a digital camera.

C. The Claims

1. Claim 47

Applicants' claim 47 recites an electronic camera including in part:

[O]utput data control means for selecting ... one of a plurality of different output data format codes ... corresponding to at least one of a plurality of different types of information handling systems....

Nothing in the cited art discloses, teaches, or in any way suggests such a camera. Indeed, the Examiner in his own rejection admits this critical gap in the cited art:



Both Kawahara and Eikonix fail to disclose [a digital camera where]  
... the format code checking function is performed so as to be  
associated with each captured image to be stored in the memory.

Examiner's June 8, 1999 rejection, page 5. (Emphasis added.)

Notwithstanding this admission, the Examiner fails to cite any additional prior art disclosure or teaching to fill the gap. While the Examiner discusses at length the disclosure of floppy disk *memory device* formatting in the Macintosh Guide, such *memory device* formatting does not constitute *data file* formatting as claimed in Applicant's claim 47.

In particular, the Macintosh disk formatting cited by the Examiner does not perform a "format code checking function... so as to be associated with each captured image" as admitted by the Examiner to be absent from the digital camera art. Accordingly, Applicants respectfully submit that the Examiner's reliance on the asserted disclosure of memory formatting in the cited Macintosh PC art is irrelevant and misconstrues both Applicants' claim language and the content of the prior art.

Applicants' further respectfully submit that the Examiner's rejection also misconstrues the teachings and disclosure of Eikonix. In this regard the Examiner states:

Eikonix digital camera system stores data format codes for Apples Macintosh II and IBM, which are used to convert image data into an image data format compatible to IBM or Apples Macintosh computer.

Examiner's June 8, 1999 rejection, page 6.

There simply is no such teaching or disclosure in Eikonix as stated by the Examiner. Applicants respectfully submit that a review of the Eikonix article plainly indicates that the Examiner is in error in this regard.

If such data formatting occurred in the "camera system" as asserted by the Examiner, there would be no need for the special PC interface boards or device drivers as specifically called for in the

Eikonix article. To the contrary of the Examiner's position, Eikonix teaches directly away from such "camera system" data formatting by requiring that a special interface processing board and device driver software be installed in a PC to permit the Eikonix scanner to communicate with the PC.

Having misconstrued both Applicants' claim language and the content of the art, it is respectfully submitted that the Examiner compounds the error by asserting a combination of the cited references in contravention of their direct teachings. As indicated above, Kawahara et al. teaches a digital camera for use with a dedicated, single purpose playback device. Because circuit complexity and power consumption resulting from data processing are believed undesirable, Kawahara et al. expressly teaches the shifting of data processing to the playback device to simplify camera design. As with Kawahara et al., Eikonix maintains processing in the playback device by specifically requiring the installation of a special interface processing board in a PC for use with the scanner.

Against this background, the Examiner's position runs contrary to the teachings of the art by shifting processing overhead, in this case PC data formatting, from the PC to the digital camera of the asserted combination. Under the teachings of the cited art, such claimed data formatting would be performed in the PC, and not in the camera as Applicants have claimed.

In view of the foregoing, it is respectfully submitted that the Examiner's rejection of claim 47, based on the asserted combination of Kawahara et al. with Eikonix and the Macintosh Guide, is unsupported by both the disclosure and teachings of the cited art. Claim 47 is thus believed to be in condition for allowance.

2. Claims 53, 55

Claims 53 and 55 depend from and include all of the limitations of claim 47. Accordingly, these claim are believed to be in condition for allowance.

3. Claim 56

Applicants' arguments in support of patentability for claim 47 also apply to claim 56.

Accordingly, claim 56 is believed to be in condition for allowance.

4. Claims 57, 60 and 61

Claims 57, 60 and 61 depend from and include all of the limitations of claim 56. Accordingly, these claim are believed to be in condition for allowance.

5. Claim 72

Claim 72 is directed to a video image signal translator having input and output interfaces in the translator housing for respective removable receipt of first and second memory elements. The Examiner rejected claim 72 based on his assertion that it would have been obvious to "substitute a video tape in place of the image sensor CCD of Kawahara et al.". Applicants respectfully disagree and traverse this rejection.

Again, extensive and careful review of the prior art finds no such teaching or motivation for making the asserted substitution. The Examiner's reliance on "official notice" of the mere existence of VHS tapes cannot, without further evidentiary support, provide the necessary teaching or motivation to substitute a VHS tape for the Kawahara et al. CCD.

As discussed in Applicants' description of the prior art in the application, frame grabbers were available in the prior art to transfer images from an NTSC source (such as a VHS camcorder) to a PC. With such frame grabbers available, there would be no motivation in the prior to perform the VHS/CCD substitution proposed by the Examiner.

Accordingly, it is respectfully submitted that claim 72 patentably distinguishes over the prior art and is in condition for allowance.

6. Claims 73 and 74

Claims 73 and 74 depend from and include all the limitations of independent claim 72 and are likewise believed to be in condition for allowance for the same reasons.

7. Claims 80 and 81

Claim 80 recites a method of translating a video image. For the same reasons stated above with regard to claim 72, claim 80 is believed to be in condition for allowance.

Claim 81 depends from and includes all the limitations of independent claim 80. Accordingly, claim 81 is also believed to be in condition for allowance.

8. Claim 88

Claim 88 is also believed to patentably distinguish over the prior art for the same reasons discussed above with regard to Applicants' claim 47. Claim 88 is thus believed to be in condition for allowance.

9. Claims 90, 91 and 93

Claims 90, 91 and 93 depend from and include all of the limitations of claim 88. Accordingly, these claims are believed to be in condition for allowance.

10. Claims 105-107

With regard to claims 105-107, the Examiner's rejection simply states that these claims "recite what was previously discussed with respect to claim 47." This is not, in fact, the case.

Claims 105-107 recite formatting a digital image into a data file specifically including a "computer operation code" or OP code. Claim 47 did not include this limitation.

As commonly understood in the art, an OP code is not simply data, but rather a computer executable instruction. None of the cited prior art discloses, teaches or suggests the storage of such OP code in data files generated in a digital camera.

The Examiner's rejection fails to comment on or in any way address the recited OP code limitation in Applicants' claims 105-107. Applicants thus respectfully submit that the Examiner has

failed to state a *prima facie* case of obviousness with regard to these claims. Accordingly, these claims are believed to be in condition for allowance.

11. Claims 110-112

Claim 110 is believed to patentably distinguish over the prior art for the same reasons discussed above with regard to Applicants' claim 47. Claim 110 is thus believed to be in condition for allowance.

Claims 111 and 112 depend from and include all the limitations of independent Claim 110. Accordingly, Claims 111 and 112 are believed to be in condition for allowance.

12. Claims 48 and 49

Claims 48 and 49 depend from and include all of the limitations of claim 47. Accordingly, these claims are believed to be in condition for allowance.

13. Claim 50

Claim 50 depends from and includes all of the limitations of claim 47. Accordingly, claim 50 is believed to be in condition for allowance.

In addition, claim 50 includes the limitation of storing a *decompression* algorithm in the camera memory element. Such storage of a decompression algorithm on a memory device in a digital camera is neither disclosed or taught by Sasaki et al. or any of the cited art of record.

The Examiner's rejection of claim 50 fails to comment on or otherwise recognize this significant limitation. The Examiner has thus failed to state a *prima facie* case of obviousness with regard to this claim 50. Accordingly, claim 50 is believed to be in condition for allowance.

14. Claims 51, 52 and 54

Claims 51, 52 and 54 depend from and include all of the limitations of claim 47. Accordingly, these claims are believed to be in condition for allowance.

15. Claims 58 and 59

Claims 58 and 59 depend from and include all of the limitations of claim 56. Accordingly, these claims are believed to be in condition for allowance.

16. Claim 62

Claim 62 is believed to patentably distinguish over the prior art for the same reasons discussed above with regard to Applicants' claim 47. Claim 62 is thus believed to be in condition for allowance.

17. Claims 63-65

Claims 63, 64 and 65 depend from and include all of the limitations of claim 62. Accordingly, these claims are believed to be in condition for allowance.

18. Claims 89, 92, 93 and 94

Claims 89, 92, 93 and 94 depend from and include all of the limitations of claim 88. Accordingly, these claims are believed to be in condition for allowance.

19. Claim 95

Claim 95 depends from and includes all of the limitations of claim 88. Claim 95 also includes the added limitation of claim 50 of storing a *decompression* algorithm in the camera memory. Accordingly, claim 95 is believed to be in condition for allowance.

20. Claims 108 and 109

As in the case of claims 105-107, claims 108 and 109 recite formatting a digital image into a data file specifically including *both* data and "computer operation code" or OP code.

The Examiner's rejection fails to comment on or otherwise address the recited OP code

limitation in Applicants' claims 108 and 109. Applicants thus respectfully submit that the Examiner has failed to state a *prima facie* case of obviousness with regard to these claims. Accordingly, these claims are believed to be in condition for allowance.

21. Claims 113 and 114

Claims 113 and 114 depend from and include all of the limitations of claim 110. Accordingly, these claims are believed to be in condition for allowance.

D. Objective Evidence of Non-Obviousness  
Further Rebutts The Examiner's Rejection

When reviewing an obviousness rejection, objective evidence, comprised of real-world facts, such as commercial success, must be considered and is entitled to great weight. *Minnesota Mining & Mfg. Co. v. Johnson & Johnson Orthopedics, Inc.*, 976 F.2d 1559 (Fed. Cir. 1992). As noted by then Chief Judge Markey in *Stratoflex, Inc. v. Aeroquip Corp.*:

It is jurisprudentially inappropriate to disregard any relevant evidence on any issue in any case, patent cases included. Thus evidence rising out of the so-called "secondary considerations" must always when present be considered en route to a determination of obviousness. Indeed, evidence of secondary considerations may often be the most probative and cogent evidence in the record. It may often establish that an invention appearing to have been obvious in light of the prior art was not. It is to be considered as part of all the evidence, not just when a decision maker remains in doubt after reviewing the art.

*Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1538-39 (Fed. Cir. 1983).

Applicants respectfully submit that secondary considerations of commercial success in the present case decisively rebut the failed combination of the Examiner's rejection. In particular, although Applicants' invention is not limited to the use of a floppy disk, the Examiner's rejection of

all claims on appeal is entirely premised on the erroneous conclusion that:

[I]t would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a standard 3.5" floppy disk as the removable memory in the Kawahara as modified by Eikonix device in order to provide a standard interface to the computer.

Examiner's June 8, 1999 rejection, page 6.

In response to this erroneous conclusion, Applicants cite the extraordinary commercial success of the Sony Mavica camera as evidenced in the article "How Sony Beat Digital-Camera Rivals", Wall Street Journal, page B1, January 25, 1999. This article was attached to a Supplemental Information Disclosure Statement filed by Applicants on May 4, 1999.

As indicated in the Wall Street Journal, the Mavica is the "top selling camera in the United States" with a "41% market share". Using the figures given in the article, this resulted in approximately 450 thousand units sold in 1998, generating around \$300 Million Dollars in revenue. This is extraordinary commercial success for a camera introduced only one year earlier, in 1997.

As further indicated in the Wall Street Journal, this extraordinary commercial success is directly attributed to a single factor, i.e. the use of a standard, 3.5" floppy disk in the camera. In this regard, the Wall Street Journal states:

[T]he reason for its 41% market share is simple: It's is a snap to use. The Mavica stores its pictures on a standard floppy disk. ...

An easy-to-use floppy disk system propelled the Mavica to top spot. ...

Mavica's key attribute, its floppy disk, costs the consumer less than a dollar and comes with 1.44 megabytes of memory storage.

Wall Street Journal, at page B1.



The fact that the extraordinary commercial success of the Sony Mavica is directly attributable to the use of a 3.5" floppy disk in the camera is further evidenced by Sony's own marketing campaign. As indicated in the materials included in the Submission Of New Evidence filed by Applicants on November 3, 1999, Sony focuses its Mavica advertising on the very fact that the camera uses a 3.5" floppy disk. This advertising highlights statements such as "the fun is in the floppy" and "the difference is the floppy disk".

Applicants respectfully submit that the commercial success of the Mavica stands as undeniable, real world evidence which proves that it was in fact not obvious to utilize a 3.5" floppy disk in the Kawahara et al. camera at the time Applicants' invention was made. Accordingly, Applicants respectfully submit that the Board should reject the reasoning of the Examiner's rejection as being based on a premise which is clearly erroneous.

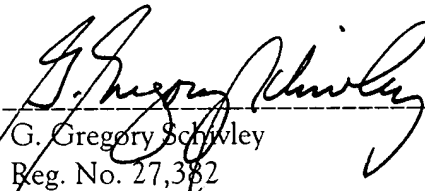
#### IX. SUMMARY

The Examiner's rejection of claims 47-65, 72-74, 80-81, 88-95 and 105-114 on the grounds of obviousness-type double patenting has been mooted by terminal disclaimer.

The Examiner's rejection of claims 47-65, 72-74, 80-81, 88-95, and 105-114 under 35 U.S.C. § 103 is in error. There is no teaching or suggestion for the combination asserted by the Examiner and, in fact, such combination is contrary to the teachings of the references themselves. The Examiner has failed to state a *prima facie* case of obviousness. Even if the Examiner could state a *prima facie* case of obviousness, which he can not, objective evidence of non-obviousness fully rebuts the same. Accordingly, Applicants are entitled to grant of a patent.

For the reasons discussed above, it is thus respectfully submitted that the rejection of claims 47-65, 72-74, 80-81, 88-95, and 105-114 should be reversed.

Respectfully submitted,

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APPENDIX 1

CLAIMS ON APPEAL

47. In an electronic camera including means for digitizing captured image data and a memory element for storing digitized image data, the improvement comprising:

output data control means for selecting for each digitized captured image to be stored in the memory element one of a plurality of different output data format codes stored in the camera and assigning the selected format code to the digitized captured image, each output data format code corresponding to at least one of a plurality of different data formats for different types of information handling systems, and

logic means responsive to said output data control means for determining an output data format for each digitized captured image in accordance with the assigned output data format code.

48. The improved arrangement of Claim 47 further comprising picture image resolution determining means for selectively determining which of a plurality of compression algorithm parameters are to be applied to said digitized captured image.

49. The improved arrangement of Claim 48 wherein said memory element comprises a removably mounted digital disk.

50. The improved arrangement of Claim 48 wherein a digital decompression algorithm associated with a compression algorithm selected by said image resolution determining means is also stored in said memory element and further comprising record marking means for storing a digital coded mark for indicating decompression algorithm parameters to be utilized in decompressing each said digitized captured image.

51. The improved arrangement of Claim 48 further comprising record marking means for storing a unique digital mark indicating compression algorithm parameters utilized in compressing each said digitized captured image.

52. The improved arrangement of Claim 48 further comprising record marking means for generating and storing with each digitized captured image a coded marking indicating the compression algorithm parameters utilized in compressing said digitized captured image.

53. The improved arrangement of Claim 47 further comprising memory formatting means operable during a power-up routine to automatically format said memory element in accordance with one of a plurality of memory formats.

54. The improved arrangement of Claim 47 further comprising audio recording means for simultaneously storing digital audio signals associated with each subject image and memory file correlation means for associating in said memory element the respective storage locations of said audio signals with its associated image signals.

55. The improved arrangement of Claim 47 further comprising control means for improving image signal storage efficiency by selectively determining an amount of storage of said memory element to be associated with storage of each picture image.

56. An electronic camera comprising:  
means for capturing image data corresponding to a selected image;  
means for digitizing captured image data;  
removably mounted memory means for storing digitized image data;  
output data format control means for storing in said camera at least one of a plurality of different output data format codes where each of said plurality of output data format codes corresponds respectively to at least one of a plurality of different data file formats for different types of computer apparatus; and

logic means responsive to said format control means for selectively controlling the formatting of said digitized captured image data in accordance with a selected one of said plurality of different output data format codes.

57. The device of Claim 56 further comprising memory formatting means operable to automatically format said removably mounted memory means in accordance with one of a plurality of operator selectable data storage formats.

58. The device of Claim 56 further comprising image resolution determining means for selectively determining which of a plurality of compression algorithm parameters are to be applied to said digitized image data.

59. The device of Claim 58 further comprising record marking means for indicating which one of said plurality of compression algorithm parameters were utilized to compress said digitized image data.

60. The device of Claim 56 wherein said removable mounted memory means comprises digital data diskette means and further comprising selectable diskette formatting means for automatically formatting the diskette means in accordance with one of a plurality of operator selectable memory formats.

61. The device of Claim 56 further comprising remote activation means for selectively activating said device and logic means responsive to said remote activation means for initiating a memory format check of said removably mounted memory means.

62. A process for storing a digitized version of data corresponding to an image captured by an electronic camera, the process comprising:

storing in a selectively addressable memory in the camera at least one of a plurality of different digital data file format codes, each code corresponding respectively to at least one of a plurality of different data file formats for different types of computer apparatus,

formatting in the camera the digitized version of a captured image in accordance with a selected digital data file format code, and

storing the formatted digitized version in a digital memory directly coupled to the camera.

63. The process of Claim 62 further comprising the preliminary steps performed in the camera of:

checking the format of the digital memory for compatibility with a predetermined type of information handling device, and

performing memory format initialization of the digital memory whenever compatibility with the information handling device is not found.

64. The method of Claim 62 wherein the digital memory is removably coupled to the camera.

65. The method of Claim 62 wherein the digital memory comprises a memory element normally associated with a personal computer.

72. A video image signal data format translator comprising:  
a translator housing;  
an input interface in the translator housing for removable receipt of a first memory element containing a first electrical representation of a captured image;  
a converter coupled to the input interface and operative to convert the first electrical representation into a second electrical representation;  
an output interface in the translator housing for removable receipt of a second memory element normally usable in conjunction with an information handling device; and  
a stored program controller in the translator housing operative to arrange the second electrical representation in a preselected format and to present the formatted second electrical representation to the output interface for storage in a second memory element, the format being directly compatible with a program running on the information handling device.



73. The translator of Claim 72 wherein the stored program controller is further operative to check the format of a second memory element coupled to the output interface for agreement with the preselected format and to perform initialization of the second memory element whenever agreement with the preselected format is not found.

74. The translator of Claim 72 wherein the input interface can removably receive a first memory element comprising an analog video memory element, the output interface can removably receive a second memory element comprising a digital memory element, and the converter includes an analog to digital converter.

80. A method of translating in a signal format translator a first electrical representation of a video image signal into a second electrical representation of the video image signal for storage in an output memory element, the method comprising:

reading the first electrical representation from an input memory element coupled to the translator and presenting the first electrical representation to a converter located in the translator;

converting the first electrical representation into the second electrical representation using the converter;

determining in the translator a preselected format for the second electrical representation;

formatting in the translator the second electrical representation in accordance with the preselected format; and

writing the formatted second electrical representation to the output memory element coupled to the translator thereby enabling direct use of the output memory element with an information handling system utilizing the preselected format.

81. The method of Claim 80 comprising the additional step of checking in the translator a memory format of the output memory element for agreement with a preselected memory format and initializing the format of the output memory element in accordance with the preselected memory format whenever said agreement is not found.

88. An improved electronic camera comprising:

- an optical lens;
- shutter means operably associated with said lens;
- an array of discrete light sensing pixel elements, each pixel being responsive to incident illumination from a subject image radiating through said lens and shutter means to generate an analog picture information signal corresponding to said subject image;
- analog to digital converter means for converting said analog picture information signal into corresponding digital data information signals;
- memory means for storing said digital data information signals;
- output data control means for selecting for each digital data information signal one of a plurality of different output data format codes prerecorded in said camera and assigning the selected output data format code to the digital data information signal, each output data format code corresponding respectively to at least one of a plurality of different data formats for different types of information handling apparatus; and
- logic means responsive to said output data control means for determining the output data format file structure of said digital data information signals in accordance with said assigned output data format code.

89. The improved electronic camera of Claim 88, further comprising picture image resolution determining means for selectively determining which of a plurality of compression algorithm parameters are to be applied to said digital data information signals.

90. The improved electronic camera of Claim 88, wherein said memory means comprises digital data means having a plurality of addressable sections for storing said digital data information signals.

91. The improved electronic camera of Claim 88, further comprising memory organizing means for automatically formatting said memory means in accordance with said output data format code.

92. The improved electronic camera of Claim 89, further comprising marking means for recording a unique mark indicating decompression algorithm parameters to be utilized in decompressing said digital data information signals.

93. The improved electronic camera of Claim 88, further comprising memory allocating means for allocating said memory means in accordance with at least one of said plurality of data format codes.

94. The improved electronic camera of Claim 93, further comprising image resolution determining means for selectively determining which compression algorithm parameters are applied to said digital data information signals.

95. The improved electronic camera of Claim 89, wherein said digital data compression algorithm is recorded in said memory means and further comprising marking means for indicating the compression algorithm parameters utilized in compressing said digital data information signals.

105. A process for storing a digitized image in a camera comprising:  
formatting the image into a digital image data file containing therein both image data and computer operation code, and  
storing the digital image data file in a digital memory in the camera.

106. The method of claim 105 further comprising:  
compressing the digital image prior to the formatting step.

107. For use in a camera having a digital memory and a plurality of user selectable modes of operation, a method for storing a digital image, comprising:

- determining the user selected mode of operation;
- generating a mode code corresponding to the user selected mode of operation;
- compressing the digital image;
- formatting the compressed digital image into a digital data file comprising the mode code, image data and computer operation code; and
- storing the digital data file in the digital memory.

108. For use in a camera having a digital memory, a plurality of user selectable image resolutions, and a switch allowing a user to select from a plurality of modes of operation, a method for storing a digital image, comprising:

- determining from the status of the switch the mode of operation selected by the user;
- generating a mode code corresponding to the mode of operation selected by the user;
- determining the image resolution selected by the user;
- generating a resolution code corresponding to the image resolution selected by the user;
- compressing the digital image in accordance with the image resolution selected by the

user;

- formatting the digital image into a digital data file comprising image data and computer operation code;

- writing the mode code into the digital data file;
- writing the resolution code into the digital data file; and
- storing the digital data file into the digital memory.

109. For use in a digital camera having a digital memory, a plurality of user selectable image resolutions, a switch allowing a user to select from a plurality of modes of operation, and an image memory removably affixable thereto and having stored therein a plurality of digital image files each corresponding to the digital image, a method for storing a digital image, comprising:

- determining from the status of the switch the mode of operation selected by the user;
- generating a mode code corresponding to the mode of operation selected by the user;
- determining the image resolution selected by the user;
- generating a resolution code corresponding to the resolution selected by the user;
- compressing the digital image in accordance with the resolution selected by the user;
- formatting the digital image into a digital file comprising image data and computer operation code;

- writing the mode code into the digital data file;
- writing the resolution code into the digital data file;
- storing the digital data file into the digital memory; and
- transferring the digital data file from the digital memory to the image memory.



110. An electronic camera operative to generate output data for use with a plurality of user selectable information handling systems, comprising:

a digitizer for generating digital data corresponding to a captured image;

a memory element for storing the digital data; and

an output controller for determining the selected information handling system and assigning a corresponding output data format code to the stored digital data.

111. The camera of claim 110 further comprising:

a compression processor for compressing the digital image data prior to formatting in the digital control unit.

112. The camera of claim 111 further comprising:

a mode switch for selecting different modes of operation of the camera and generating a corresponding switch code, the output controller being operative to write the switch code into a header in the image data file.

113. The camera of claim 112 further comprising:

a resolution switch for selecting the resolution used by the compression processor in compressing the digital image data and generating a corresponding resolution code, the output controller being operative to write the resolution code into the header of the image data file.

114. The camera of claim 113 further comprising:

an image memory removably mounted to the camera for storing the digital image data file together with a plurality of other digital image data files respectively corresponding to a plurality of other captured images.